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(71)Applicant : **SHOWA DENKO KK**

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(72)Inventor : **SUMI MOCHIYUKI**

(54) PREPARATION OF SINTERED BODY FOR HIGH HARDNESS TOOL

(57)Abstract:

PURPOSE: To obtain the titled sintered body enhanced in toughness and folding strength, by respectively mixing a cubic boron nitride powder, a powder comprising carbide or carbonitride of a metal belonging to the Groups IVa, Va and VIa of the Periodic Table or a powdery mixture thereof, an Al₂O₃ powder and an Al-powder and sintering the resulting mixture at a specific high temp. under specific pressure.

CONSTITUTION: On a wt. basis, 70W40% of a cubic CBN powder, 50W10% of the aforementioned powdery carbide or carbonitride or a mixture thereof, 2W15% of an Al₂O₃ powder and 5W15% of an Al-powder are mixed. In the next step, the powdery mixture is pref. arranged on the ultra-hard substrate (a sintered hard alloy plate comprising WC, TiC or TaC) in a layered form within an ultra- high pressure apparatus and sintered at 1,100°C or more under pressure of 30 kilobar. When the obtained resulting sintered body is used in a cutting tool, it has cutting property more excellent than that of a commercial product and an Al₂O₃ non-added product even in continuous cutting and strength is high and damage resistance is also improved to a large extent.

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